ABSTRACT

For provides a superconducting material comprising highly chemically stable Fullerene carbon molecules having a relatively high transition temperature and high chemical stability, C_{20} Fullerene molecules having stronger electron-lattice interaction than that of C_{60} Fullerene molecules are used, in order to polymerize the C_{20} Fullerene molecules into a one-dimensional chain, C_{20} is incorporated in a gap of a material having a large band gap between a valence band and a conduction band, thereafter, electrons or positive holes are injected into the obtained C_{20} Fullerene chain polymer via an electric field application for phase transition to a superconductor.